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ABSTRACT

A study of 94 students was undertaken in an attempt to support the hypothesis that remedial English instruction in college can result in measurable improvement in student writing. These students, chosen randomly from 376 prospective remedial students were divided into seven different writing classes which met for one-hour class sessions four days a week. The students also spent two hours of individualized instruction in a writing lab staffed by course instructors. The study design was weakened however by the lack of a cohesive control group--65 students scattered throughout the regular freshman English sections or not even enrolled in an English class. Of the pilot project students, 75% went on to complete freshman English, 80% of these with a grade of C or above. Of the control group, only 21 students enrolled in freshman English and only 13% received a mark of C or above. Results show that remedial students' writing can improve measurably, even in the confines of a nine week term, and that students progress best when interacting with a group. For this reason, totally individualized programs should not be used with remedial students. (JF)

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MEASURABLE IMPROVEMENT IN THE WRITING OF REMEDIAL COLLEGE STUDENTS

Background

Over fifteen years ago, the NCTE estimated the cost of remedial instruction in English in United States colleges at well over ten billion dollars (Squire, et al, 1961). In the early sixties, many educators (e.g. Kitzhaber, 1963) assumed, on the basis of rising scores and hence higher admissions standards, that the need for such costly remedial instruction would disappear. But instead of disappearing, the need has only grown more and more pronounced. A 1974 survey (Smith, 1974) of all accredited colleges and universities in the United States revealed that seventy-one percent of those schools either had a basic skills program or were currently in the process of developing one. My own 1976 survey of fifty-eight colleges revealed that ninety percent either already had or were planning to institute a remedial English program. Of the schools surveyed, however, none had any data available which indicated that such instruction produced measurable improvement in student writing. In fact, most published evidence supported the contrary conclusion. Roueche (1968) has fully documented the general ineffectiveness of most remedial programs. Moore (1970) levels similar charges and denigrates those hypocritical programs that turn the "open door" into a "revolving door." In a California study, Bossone (1966) found that forty to sixty percent of the students enrolled in remedial English classes in California public community colleges earned either D or F and only twenty percent later enrolled in college credit courses. And a more recent study by Bossone (1973) concludes that "the majority of the students improved very little in writing ability, regardless of instructional mode." Losak's study (1972) of remedial programs at Miami-Dade Junior College reported similar results, and Kendrick and Thomas (1970) found that "compensatory programs at the college level" were particularly ineffective. In spite of the strong feeling of many remedial instructors that their courses or programs are effective, only Roueche (1973) offers persuasive empirical evidence of effective remedial instruction, and then only in two-year college remedial programs which have integrated instruction in all basic areas. And yet the number of programs and their costs have escalated to far beyond the NCTE's 1961 estimates.

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Hypothesis and Assumptions

This study is an attempt to support the hypothesis that remedial English instruction can result in measurable improvement in student writing. In addition, it attempts to answer two questions: under what conditions is remedial instruction most likely to be effective; and how best might the skills, processes, and attitudes toward writing of the test sample students be best described? As a partial answer to the first question, this study posits the following set of fundamental assumptions:

1) classes should be taught by trained and interested teachers who volunteer, rather than be assigned,to teach;
2) class size should be limited to 15 and should be accompanied by individualized study in a writing lab;
3) remedial courses should carry some form of credit;
4) instruction should begin with careful individual diagnosis;
5) course goals and objectives should be clearly stated;
6) alternative learning materials and instructional modes should be available to students;
7) engagement in the full writing process should be the core rather than the end goal of the course.

Procedures

Selection of Students

The present study, a pilot project in remedial English instruction, was carried out at _____ during Fall quarter, 1976. Since funding restricted the project to 100 students, we began the selection process with a list of 376 prospective students who had 1) paid fees by mid-summer and 2) scored ten or below on the ACT English test and fourteen or below on the ACT composite. After figuring proportionate percentages for each ACT score, we chose students randomly. The results (45 percent women, 55 percent men) matched the total _____ student population closely; in addition, the selected students came from big Ohio inner-city schools, small township schools, preparatory schools, and even a few out-of-state schools. Of the 115 students thus selected and invited to participate in the pilot, ninety accepted; an additional four students who were recommended by their Freshman English instructors and who met the criteria stated above were admitted during the first two days of the term. The project began, then, with ninety-four students enrolled in seven sections.

Course Description

The broad objectives of the pilot project were: (1) to enable students to write paragraphs that are built around a clear central idea to which all following sentences are linked, that adequately sustain, complicate, and develop the central idea, and that are adapted to a specific audience; (2) to enable students to increase their control of basic syntactical and grammatical errors; (3) to enable students to read and comprehend University-level materials; (4) to bring students to realize that reading and writing are the major means of achieving successful University performance. All seven instructors worked on the formulation of these objectives; all volunteered for the assignment and were committed to the idea that writing skills can be learned; and all participated in an extensive training session.

Students attended class sessions four hours a week, one hour each day from Monday through Thursday. In addition, they signed up for two hours of individualized work per week in a small writing lab staffed by the course instructors. Class time was devoted to class- or small-group discussion/workshops and to writing, thus reserving one-to-one work for bi-weekly conferences with students or for lab time. Class work was aimed at (1) sharpening reading skills by emphasizing pre-reading, skimming and scanning, note-taking, comprehension, and vocabulary study; (2) highlighting concepts introduced by the common text (Troyka and Nudelman, Steps to Composition, 2nd ed., 1976) or by the seven sentence-combining videotapes (produced by SUNY/CUNY, 1976) the students worked with; and (3) generating writing topics which would provide students with practice in drawing inferences, conceptualizing, summarizing, and tracing (or developing) lines of analysis or argument. Students devoted the two hours of lab time to working with an instructor on specific writing or reading problems, and to working on and editing (or generating) their own writing. Briefly, students reported to the writing lab, checked the writing profile sheets on which instructors catalogued various tasks and projects, checked the lab index for appropriate supplementary/alternative materials, and began to work. As the students worked, the instructor moved around the room, helping students in any ways possible.

For administrative reasons, the Pilot project course was offered as a five-hour, S/U-graded course, the hours counting toward a student's graduation but not substituting for any other English requirement.

Description of Students

The average student in the pilot project scored nine on the English ACT test (though several scored as low as one or two). In an attempt to further detail the student profile, we administered an extensive questionnaire eliciting information about high-school background. The results of these questionnaires indicated that twenty percent of the students took no English after the sophomore year in high-school and that another thirty percent took their last English course as juniors. Furthermore, students reported that the last two English courses they took could best be described as "literature," that they did little writing (number of themes reported per course averaged slightly over two), and that, in fact, they could remember little instruction in sentence- or paragraph- or theme-writing. Students reported that they had "not much" difficulty with either reading speed or comprehension (yet the reading test we administered revealed severe deficiencies). As a group, the students also felt they were well-prepared to work with the dictionary, yet classwork later revealed many confused the dictionary with the Thesaurus and that most thought of the dictionary as simply a list of correctly spelled words. Another discrepancy emerged in student responses to questions about grammar and mechanics. Sixty percent of the students reported that they received "little or no instruction and practice in revising and correcting mechanical grammatical errors in writing," while sixty-five percent reported "a great deal" of instruction in grammar and ninety-six percent felt that these matters influenced the grades given on assignments. While no hard and fast generalizations can hold here, in the eyes of these students one distinction seems rather apparent: teachers were indeed instructing them in something known as "grammar," but that subject was not related to the students' own writing. It follows, then, that students viewed much grading of their writing as unfair. (Half of the students reported that grading on written work in high school was based "to a great extent" on grammar and mechanics; only four per cent felt that these matters had "little" effect on grades.) In fact, for a great many, the dissociation between grammar (the structure of our language and, in many respects, of our thought) and writing was largely complete. In short, the students' views corroborated the many studies which have shown that the study of grammar does not improve writing. The responses to this questionnaire suggested, then, that a link needed to be established in students' minds between well-formed sentences or paragraphs and well-formed thoughts presented on paper. It also suggested

that the relatively high grades students received in their last two high-school English courses (forty-eight percent received either A or B in the next to last course; forty-nine percent received A or B in the last course) might be attributed not only to general grade inflation but to the fact that much of the grading may well have been based on response to literature or on such intangibles as "class participation" rather than development and mastery of skills.

In an attempt to gain additional information not revealed by ACT scores or the high-school questionnaire, we administered an attitude survey based on the Likert model. The ambivalent feelings concerning the connection between grammar study and writing cropped up again in this attitude survey. Most (eighty one percent) students agreed that studying grammar improves writing while on the other hand disagreeing (seventy percent) that "if you know grammar, you know how to write." These students focused most strongly on spelling or grammar as the basis for their problems, almost surely because such errors are highly visible, countable, and markable by teachers and because these errors serve as convenient labels for problems. Asked to rank writing skills on a difficulty scale from one to ten (with one indicating greatest difficulty), half of these students ranked grammar either first, second, or third. The survey further revealed that this concern with grammar could be related to high-school grading standards as the students perceived them. Two thirds disagreed with the statement that "if people understand your writing, that is more important to teachers than errors in grammar, spelling, or punctuation."

The attitude survey also corroborated earlier evidence that the students misperceived their levels of reading skills. A majority (fifty-seven percent) seemed to equate reading speed with comprehension. (The reading test revealed low flexibility scores; i.e., the students were unable to vary reading speed to match difficulty of content.) Further ambivalence was shown in response to the statement, "People who can read well can also write well": students were divided almost equally among "mildly disagree," "not sure," and "mildly agree." As we came to know these students better, we learned that, to them, reading usually denoted the act of decoding. Hence the belief that they had little or no trouble "reading" could co-exist with their at least partial failure to comprehend.

By no means all of the items on the survey resulted in ambivalence or misperception; some statements, in fact, elicited remarkable unity. One attitude we regarded with particular optimism was elicited through several different

questions: the students did not view writing as some sort of mystery available only to the gifted or the "brainy." They showed remarkable unity in agreeing that "writing is a skill anyone can learn," and in disagreement that "writing is a talent you are born with," and "people who can't write well are not intelligent." As a group, the students strongly agreed that "on writing assignments, you should be free to write about anything." They also were in favor of grades, provided that "part of a grade would depend on how hard you worked on the assignment." The notion that effort expended should somehow equal level of skill attained we found to be deeply engrained in these students.

While we could not determine whether student desire for freedom in choosing topics was causally related to rigid high-school assignments, we did see a connection with two other items on the attitude survey. The majority felt that "you can't argue with another person's opinion" and that "a person should not be asked to explain his beliefs or opinions." In short, the students often wanted to be able to choose their own topics or positions and then not be questioned or attacked on them. These attitudes match what we know about remedial writers in general and what we came to know about this group of writers in particular: their strengths lie in informal oral presentation and in narrative writing; their weaknesses lie in expository/argumentative writing and in inferential reasoning. Our students found it much more to their liking to say "Well, that's just what I believe" or "Well, that's my opinion" than to explain or develop or defend. Concomitantly, they had great difficulty drawing generalizations from sets of data or in tracing lines of argument.

Test scores, high-school questionnaire results, and attitude survey results, then, provided a fairly accurate picture of the pilot project students. Predominantly white and middle-class (seventy-three percent white; twenty-seven percent black) from all sectors of _ , they wrote little in high school, expected difficulty with writing in college (ninety-two percent agreed that "the ability to write well is important in college," though they weren't so sure of its relationship to later success--only 47 percent agreed that "people who write well are more likely to be successful"), remained hopeful that they could yet learn to write well, but were extremely preoccupied with error.

Diagnostic and Evaluative Measures

Formal measurement took the form of four tests, administered at the beginning and at the end of the course: (1) Form A Reading Test of the McGraw Hill Basic Skills Series, (2) the syntactic maturity test developed by O'Donnell and Hunt (1970), (3) an in-house error-recognition/editing test, and (4) a

writing sample. Specifically, the McGraw-Hill test offered a means of measuring reading speed and flexibility, measuring comprehension, comparing pilot project student scores with those of other college freshmen, and breaking down the test items in comprehension into several sub-skills areas. Hunt and O'Donnell's SMT, a passage of thirty-two single-clause sentences describing the manufacture of aluminum, has been widely used as a measure, particularly in studies seeking to establish the effectiveness of sentence-combining techniques (Combs, 1976). A copy of the passage and the test directions may be found in Appendix A. The error recognition/editing test consisted of two paragraphs containing a total of thirty errors. The majority involved spelling errors involving homonyms, contractions, double consonants, word endings, and transpositions. Other categories included punctuation, capitalization, agreement (non-verb and pronoun-antecedent), possession, adjective/adverb and comparatives, case, and verb tense. Students were asked to spend thirty minutes reading the paragraphs through completely and then to edit the paragraphs, sentence by sentence, correcting all errors they found by crossing out the incorrect item and writing the correction above the line. The writing sample asked students to write in response to a pre-determined and carefully tested topic:

> On the reverse side of this paper write one paragraph in which you present the major reason your worst teacher was ineffective.

Both pre- and post-test writing samples were scored holistically by a trained team whose members were familiar neither with the students nor with the pilot project. In addition, the samples were analytically scored by another trained team, a process that included tabulating fifty-four items for each student sample. Of the four measures, the reading, SMT, and error recognition/editing tests were used primarily for diagnostic purposes, while the data gathered from the writing sample were used to evaluate the project. Nevertheless, pre- and post-test results will be reported for all measures as well as for the attitude survey.

Results

Attitude Survey

At the end of the term, students still held the beliefs that anyone can learn to write and that the inability to write well does not indicate lack of intelligence. They were also still strongly in favor of freedom to choose

their own topics and of grades. In some areas, however, the survey revealed a subtle shift. The statement, "You can't argue with another person's opinion," with which the majority of the students agreed at the beginning of the term, drew seventy percent negative response at the end of the term. Positive response to another statement, "If other people understand your writing, that is more important to English teachers than errors in grammar, spelling, or punctuation" more than doubled, from eighteen percent at the first of the term to thirty-seven percent at the end. Most provocative was a shift in the ranking of ten items in order of difficulty and importance. At the first of the quarter, fifty percent ranked "Grammar" first, second, or third (i.e. most difficult) while only twenty-nine percent ranked "making the writing mean what you want it to say" in that order of difficulty. At the end of the term, those figures were almost directly reversed: fifty percent rated "meaning" first, second, or third in difficulty and twenty-eight percent rated "grammar in that order. It would be misleading to try to conclude too much from this survey, especially since it had not been extensively tested or subjected to item or regression analysis. Nevertheless, as an informal tool, it helped us to know the pilot project students better than we otherwise might have, and it provided the basis for productive class discussions on the concepts and values involved.

Reading Test

TABLE ONE

Comparison of pre- and post-test scores on the McGraw-Hill Basic Skills System Reading Test, Form A

	Paragraph Comprehension	
	Pre-test	Post-test
Average raw score (out of a possible 30)	14	17
Average percentile rank	21.9	34.1
	Reading Speed	
Average words per minute	162.4	188.9
Total number of students taking both tests:	71	
Average increase in raw score	±2.92	
Average increase in standard score	±4.65	
Average increase in stanine	± .97	
Average increase in percentile rank	±12.20	

Averages, as usual, mask dramatic variations. Many students did move up about thirteen percentile rankings, but a few actually went down, and a surprising number made superman-leaps of thirty to forty percentile rankings. Day-to-day work in the pilot project confirmed our belief that improvement in reading is crucial for remedial English students, and that reading instruction should constitute a formal component in remedial writing classes.

Syntactic Maturity Test

TABLE TWO

Comparison of pre- and post-test scores on the Syntactic Maturity Test

	Pre	Post
Embeddings per main clause	1.64	2.40
Mean words per clause	7.00	7.20
Mean words per T-unit	10.13	11.62

Comparing this group of students to Kellogg Hunt's normative data placed the project students at about the level of ninth-graders at the first of the term. Figures gathered at the end of term, however, placed them at the level directly between Hunt's tenth- and twelfth-graders, or at about the eleventh-grade level. The embeddings per main clause and mean words per T-unit figures yield statistical significance (.01) , but indeed the gains seem slight. Yet I would like to concretize these averages and apparently small gains by producing one typical student's pre- and post-test revisions (chosen at random) of the aluminum passage:

Pre-test Revision

> Aluminum is an abundant type of metal. It comes from bauxite which is an ore. It looks and shaped like clay. It contains several substances, such as aluminum. Workmen extract and they grinds these from bauxite ore. They place them in tanks which pressure them and they form a mass. When a mass is formed they remove the mass and use a type of filter. But the liquid still remains. Other type of observatory exams are used, all the necessary processes will be give attention to. Then a white powdery alumina chemical is used. It's a mixture of aluminum and oxygen. Electrical equipment is used for all the necessary processes. After all the work is completed, a form of metal is a variety of shapes and sizes. A light, luster brightness silvery piece of metal is your productivity.

This student's pre-test revision of the "Aluminum" passage reveals a very low level of embedding (1.1 per main clause), short clauses (6.9 words per clause) and, most importantly, apparent failure to comprehend the passage. Although in many ways the student deals ingeniously with the data provided, she relies on linear sequences as opposed to hierarchically arranged, multiply embedded sentences which establish relationships for the reader. After reading the first sentence of the paragraph, for instance, the reader may not know whether it is aluminum or bauxite that looks like clay. Furthermore, sentence five does not reveal that the grinding is used as a means of extraction. Rather, the student equates the two processes, "workmen extract and they grinds," whereas more mature writers express that relationship explicitly. Clearly we cannot assume that this student has grasped the meaning of the passage, that she has understood what she read and rewrote. Note, for example, that this student seems to think that alumina is used in, rather than produced by, the process. Nor do the last two sentences indicate that the student understands that this final metal is indeed what we all know as aluminum.

Post-test Revision

> Aluminum is an abundant type of metal with many uses. The aluminum comes from bauxite which is a kind of ore. Bauxite has similarities to clay and contains several different substances. The bauxite is placed in tanks and grinded, and pressure is used to form a mass. After removing the mass with filters, the liquid remains. Then the mass undergoes several other processes before it yields a white, powdery chemical mixture, alumina. This chemical contains aluminum and oxygen. Workmen use electricity to separate the aluminum from the oxygen. Then finally a light metal which has a bright, silvery luster and comes in several forms has been produced.

This passage shows considerable gains over the original one; embeddings have jumped to 2.2 per main clause and clause length has expanded to 8.0 mean words per clause. The sense of progression is much more clear in this paragraph, with words such as "after," and "then" signaling temporal and perhaps causal relationships. Most noticeably, however, the student writer seems to have better understood the meaning of the passage and clearly represents this meaning in her own rendition of it.

Everything we know about the development of writing skills indicates that growth in syntactic maturity is a slow process, perhaps resembling a spiral much more closely than a straight line. Thus, while the gains shown in this area seem small, they are measurable -- and hence promising.

Furthermore, the easy-to-administer and easy-to-score SMT yielded important diagnostic information. It reinforced the conviction that lack of reading skills is integrally related to problems in writing, and it helped us relate students' need to learn how to perceive and express logical relationships to their difficulties with formulating multiply-embedded sentences.

Error Recognition/Editing Test

At the beginning of the term, pilot project students failed to recognize an average of eighteen out of thirty possible errors on the editing test, or sixty percent. When they took the test again on the last day of term, those figures were exactly reversed; this time, they failed to recognize twelve, or forty percent, of the errors. (Appendix B contains a list of the errors on the test and of the students' pre- and post-test scores.) Although improvement in error recognition on a test does not guarantee improvement in the students' own writing, these results seemed at least encouraging. But these students continued to be plagued by error. For many, nine weeks provides insufficient time to understand old habits, break them, and begin to form new ones. In general, achievement on this test seems closely related to reading ability; student difficulty in reading would naturally be reflected in a test that asked them to read carefully for error. Finally, though we had no way during the pilot project to test this hypothesis, we began to suspect that many of these remedial students needed eye examinations. Almost a third of them wore glasses, and in one class, several students had great difficulty seeing words written on the blackboard from anywhere but the first row of seats. The complexity of these relationships could all too easily lead to hasty generalization. Nevertheless, the editing test provided us with excellent diagnostic information. Furthermore, the results suggest that if editing skills are stressed and conscientiously practiced, improvement is possible.

Writing Sample: Holistic Rating

After all pre- and post-tests had been randomized, each member of the holistic team read and scored each paragraph (from the lowest score, one, to the highest score, six). The three-member team turned in a reliable performance, achieving unanimous agreement on thirty-four percent of the paragraphs; two of the three readers agreed on another sixty-four percent (and in only one case did this disagreement involve more than one numerical ranking). The following table contains a breakdown of average holistic scores:

TABLE THREE

Comparison of Holistic Scores

Holistic Score	Pilot Pre-test	Pilot Post-test	Control Post-test
1	11.3%	0.0%	11.0%
2	29.1%	4.5%	37.0%
3	47.3%	42.2%	43.0%
4	11.5%	43.8%	8.0%
5	0.6%	9.4%	1.0%
6	0.0%	0.0%	0.0%

These figures indicate that the greatest gains occurred as pilot project students moved up from one or two to a three ranking and from three to a four ranking. (The average rating on the pre-test was 2.41, on the post-test, 3.57. The t-value of 12.40 yields significance at or beyond the .001 level.) The control group scores, available only for an end-of-term writing, need some further explanation. The sixty-five students who made up the control group matched the project population in ACT score, sex, and high-school ranking, and they all wrote on the same question that the pilot project students wrote on, and they did so on the same day. But once these students had not been selected for the pilot project course, we were administratively unable to control what happened to them during their first term. We opted to do, then, the next best thing: we watched them as they did what all entering freshmen have done during the twelve years since remedial English courses were last available -- sign up for regular courses and then sink or swim in them. As it turned out, twenty-four of the control group students (thirty-five percent) had enrolled in Freshman English, thirty-six (fifty-six percent) had enrolled in no English course at all, and five (nine percent) had enrolled in a reduced-pace version of Freshman English available only to minority students. As a whole, control group scores at the end of the term were very similar to the pilot project scores at the beginning of the term. This evidence thus partially supports the notion that the writing of students who do not take a remedial course probably changes very little during the first quarter of their college year. In order to analyze these results more fully, I separated those students who took Freshman English from those who took no English and subjected the resulting data to t-test analysis in order to compare the performance of the two groups.

TABLE FOUR

Comparison of Control Group Holistic Scores

	Mean Holistic Score	t-value	probability
Control members in Freshman English	2.42		
Control members in no English class	2.54	-0.48	0.63

These figures show that, in fact, those students who had taken no English scored slightly higher on the holistic rating than did those who took Freshman English; the t-value and probability figures show that this slight difference is not statistically significant. That is to say, the two groups' scores were almost identical--and they matched very closely the pilot project students' pre-test holistic mean of 2.4.

Writing Sample: Analytic Rating

A full listing of pre-test, post-test, and control group means for all variables is included below in Appendix C. Following is a summary of what seem to be the most important findings.

On the post-test, the pilot project students wrote more, averaging 147 words compared to 136 words at the first of the term. On the post-test, only seventeen percent wrote fewer than 100 words while fifteen percent wrote more than 200 words. These figures compare significantly with the twenty-seven percent who wrote fewer than 100 words on the pre-test and the one percent who wrote more than 200 words. Length of T-units and of subordinate clauses jumped about two words in each case, from thirteen to fifteen for T-units and from seven to nine for subordinate clauses. Furthermore, depth level of embeddings increased from 1.30 to 1.50 (t-test yields significance at the level of .04). Topic sentences are stronger and more focused on the post-test,* and errors are generally reduced. Spelling errors decreased from a mean of 3.8 to a mean of 2.8, run-on sentences fell from a mean of 1.0 to .58, and the use of more sophisticated punctuation (such as semi-colons and colons) increased from practically zero to .25.

On the post-test, the sum of all errors made by pilot project students was 1,010 in a total of 11,172 words, or about one error in every eleven words written. This figure compares well with the pre-test paragraphs in which students made one mistake in every eight words written (t-value of 3.58 indicates that improvement in ability to reduce error is significant at or beyond the .01 level). Comparison

* t-value of 5.41; significance at or beyond .001

of control-group means with pilot project pre- and post-test means consistently shows the control-group scores to be very close to the pilot project pre-test scores:

TABLE FIVE

Error Ratios

Group	Total Errors	Total Words	Error/Word Ratio
Pilot Pre-test	1,275	10,405	1:8
Pilot Post-test	1,010	11,172	1:11
Control Post	1,253	9,722	1:7

Further computer analysis suggests that the students' preoccupation with error is perhaps well-founded: the correlation (.7) between total number of errors and both holistic score and analytic rating score is significant at the .001 level, and the correlation (.5) between total errors and final course grade is significant at the .01 level.

Selected possible correlations between holistic scores and other analytic variables are provided in the following table:

TABLE SIX

Correlations Between Pre-test Holistic Score (V62)
and Selected Analytic Variables

Variable	Correlation	Significance Level
1. Strong topic sentence	.5	.001
2. Subject-verb agreement errors	.5	.006
3. Spelling errors	.4	.01
4. Depth level of embeddings	.4	.01
5. Principal parts of verb errors	.3	.02
6. Number of run-on sentences	.3	.03
7. Number of subordinate clauses	.3	.04
8. Average words per T-unit	.3	.05

These correlations suggest, but by no means prove, that the holistic graders' impressionistic response may most obviously be related to the students' ability to articulate a purposeful statement about the topic. They also suggest that the readers' response is more subtly related to matters of error (items two, three, five, and six above) and syntactic maturity (items four, seven, and eight).

TABLE SEVEN

Correlations Between Post-test Holistic Score (V62)
and Selected Analytic Variables

Variable	Correlation	Significance Level
1. Strong topic sentence	.4	.01
2. Depth level of embeddings	.4	.01
3. Total spelling errors	.3	.02
4. Final grade in Pilot	.5	.01
5. Total errors	.5	.01
6. Number of subordinate clauses	.5	.004
7. Number of subject-verb agreement errors	.5	.009

These correlations suggest that certain strengths and weaknesses in student writing are more closely related to how holistic scorers determine "preparedness" or "unpreparedness" for college writing than are others. Especially interesting is the correlation between holistic score and final grade (S/U) in the pilot project course, since the grades were assigned by instructors who had worked with and watched the students all term while the holistic scores were given by teachers who knew neither the students nor what the course involved. Two items which were strongly correlated on the pre-test puzzlingly failed to hold constant on the post-test. The mean words per T-unit, which Hunt and others feel is a valid measure of syntactic maturity, correlated well with the holistic score on the pre-test. However, the correlation between the two measures on the post-test was not strong (significance level of only .15). Further analysis of the writing may well yield an explanation of this disparity, but it is not now at hand. We may find that the relationship between syntactic maturity and high holistic scores is more complex than we might have imagined. Finally, the holistic scores on both pre-test and post-test did not correlate well with ACT score. These figures suggest that while the ACT scores may provide a general guideline for initial placement, at scores below 10 they are not helpful in finer discrimination. That is to say, the student with a score of two or three on the English ACT may quite possibly compare equally in his writing to the student with a score of eight or nine. For scores below 10, then, we should assess skills individually, without relying on the ACT to group students for us.

Final Grades and Follow-up of Pilot Project Students

Of the ninety-four students who began the term, eighty-six completed the course (and of the eight who did not finish, only two were failing when they withdrew). Sixty-one of the students (seventy percent) received a passing grade of S; twenty-five (thirty percent) received a grade of U.

Seventy-five percent of the pilot project students went on to complete Freshman English the following term. Of these students, eighty percent received a grade of C or above; the average grade-point for pilot project students who completed Freshman English was 1.80, or between a C and a C-. Only six students (nine percent) failed the Freshman English course.Of the sixty-five control group students, only twenty-one enrolled in Freshman English. Of those, six (twenty-eight percent) dropped the course. Those control group members who completed Freshman English earned a grade point average of 1.2; only thirteen percent received a mark of C or above. As of this writing (January, 1978), fifty-five percent of the pilot project students are still enrolled in the University.

Although the percentages, sums, means, and correlations presented thus far are necessary and useful parts of this study, they can and should be concretized in actual student writing. It is, of course, impossible to include all student pre- and post-test paragraphs, so I have chosen two at random from the group which I think adequately represent the students' writing at the beginning and at the end of the term's work.

PRE-TEST PARAGRAPHS

Student A

> Papers in on time, not being tardy, speak loud enough to hear, and being totaly alertt, are expected from each and everyone of us as students. The experenced teachers of todays society are suppose to show us the way to the future ahead by setting examples. Not examples of being unorganized, soft voice, and being late, were we taught that? The examples that was taught to me, lightened the spark in the minds of many Student. So show us the way to more organized future than to a future of confussion.

Student B

> My worse, ineffective, teacher was Mr. Opel whom taught our 8th grade history class. Mr. Opel had a nervous condition, he easily got upset and couldnt keep the class under control. To get the idea of how the first 15 minutes of our class time was spent Mr. Opel would yell at one student for comming in late, another student would shoot him with a spittball, with this Mr. Opel would start yelling at whom ever shot him. Some rude student would get up and start to walk out class with Mr. Opel trying to ask where is he going. Nearly the whole class left their books in their lockers [illegible] conditions I didn't learn anything about historey the whole year. Mr. Opel was my worse, ineffective teacher.

POST-TEST PARAGRAPHS

Student A

My worst teacher was ineffective because she could not keep the interest of the students. She could not present, in an interesting way, the academic subjects which we were supposed to be learning. She would talk in a monotone voice at a fast rate of speech which nobody could understand. (She also had a weird sense of humor and wore very strange clothes.) The atmosphere she created was out of place for the subjects she taught. So she would lose my interest in the course along with the interest of the rest of the class. For example, we were suppose to have studied a chapter on the Egyptians and be ready for a quiz. So our teacher walks in, dressed up as an Indian, and starts to explain about the Indians in Mexico. The whole class went into shock. That was just one, of many, episodes. The atmosphere that my teacher created and the way she presented the academic subjects was completely boring and could not keep her class, including me, interested.

Student B

My most ineffective teacher was Mr. Opel, who taught our rude and rowdy eighth grade history class. Although he tried to keep everything and everyone in order, the entire class time was often spent in total chaos. Spit-balls would be soaring through the air, frequently hitting Mr. Opel and other students. Although Mr. Opel had a bad heart, he was constantly yelling. Someone always took the hall pass and abused its purpose by getting a friend out of classes or by never returning it. Mr. Opel would be furious because he never knew who had taken the hall pass. Some students wouldn't even bother with the hall pass; they would just stand up and leave the room while Mr. Opel was trying to keep the students in order. I really didn't think he would last the whole year. We never did any homework, and almost everyone left their books in their lockers. Because of these conditions, I didn't learn anything about history that whole year.

These post-test paragraphs are not perfect. Errors still creep in, logical connectors are not always strong, transitions are often ignored, and unity could certainly be improved. Yet compared to the paragraphs from the first of the term, these two students show considerable improvement. Both have a

clear sense of topic and of purpose; both provide strong support and interesting detail. Semi-colons and parentheses, completely absent in the pre-test sample, are beginning to appear, and use of commas has become more regular. On the pre-test, the holistic team rated the first paragraph as a one (the lowest score), the second as a two. On the post-test, both paragraphs received a rating of four (the highest score was six). To my mind, these two students corroborate Mina Shaughnessy's contention (1977) that "while the skills and priorities of studenthood are not easily acquired at the age of eighteen or over, students are demonstrating that competency can be aquired at that age." Furthermore, these two students' paragraphs eloquently support the hypothesis that remedial English instruction can lead to measurable improvement in writing skills.

Weaknesses of the Study

By far the greatest weakness in the design of this study involved the control group. Ideally, the seven pilot project classes would have been matched by seven regular classes. Budget limitations, however, prevented us from providing instruction for any students other than those enrolled in the pilot. As a result, though we identified a control group which matched the pilot project enrollment, these students were scattered throughout the regular Freshman English sections or were not enrolled in any English class at all. The fact that the writing of control group students at the end of the term resembled closely the writing of the pilot group at the beginning of the term, then, must be viewed with caution because of the uncontrolled variables surrounding the control group students.

Two other components could be significantly improved in light of this study. First, the fifty-four items counted by analytic raters should be refined and modified. Specifically, mean clause length should be counted in addition to T-unit length, and the depth-level of embedding measure should be refined to enumerate types of embeddings. In addition, future researchers should develop a measure of logical connectors (or transitions) and include it in the items counted. Finally, future studies should gather pre- and post-test writing samples in response to more than one question, and each question should elicit a different mode. Doing so would not only provide larger and more diverse samples of student writing, but would also allow researchers to compare strengths and weaknesses of student writing among the various modes.

Conclusions

In spite of its weaknesses, this study offers evidence that remedial students' writing can improve measurably, even in the confines of a nine-week term: results of this study indicate that both ability to control error and to formulate a clear statement and to sustain and develop it can be improved significantly. Another question posed at the outset of this study, "under what conditions is remedial instruction most likely to be effective" can now partially be answered. Extensive teacher and student evaluation of the project support the view that remedial writing students make the greatest gains on particular problems in, say, spelling or subject-verb agreement in one-to-one tutoring sessions. (Our experience shows that thirty minutes is approximately the optimum length of a one-to-one session.) However, these students progress best in overall writing from generating ideas with and interacting in groups, and from being immersed in the writing process. Moreover, these students clearly need the experience of becoming part of a college class. For these reasons, then, totally individualized programs should not be used with remedial students.

Close study of the almost daily writing of the pilot project students reveals that one of their greatest difficulties lies in conceptualization and inferential thinking. That is to say, given a set of data, remedial students often have difficulty generalizing from that data. This observation leads me to conclude that, for remedial students, the use of drill exercises or workbook exercises divorced from the students' own writing will most often fail to lead to significant change in that writing. In short, the remedial student often operates below the cognitive level at which he could abstract and generalize a principle and then apply that principle to enormously varying writing situations and problems. It follows, then, that conceptualization and inferential skills should be practiced and developed in as many ways as possible, e.g. in writing projects, group discussions or workshops, and in reading assignments. This assumption, as well as extensive classroom observation, leads me to conclude that sentence combining exercises (such as those used in the SUNY/CUNY videotapes) will be effective with remedial students only if those exercises grow out of and are always related to the students' own writing (i.e., not done in isolation) and if they are accompanied by continued work on inferential and conceptualizing skills.

Suggestions for Future Study

In addition to the suggestions made above in the discussion of study weaknesses, the effectiveness of sentence combining techniques with remedial students clearly calls for much further exploration. Beyond that, there is a real need for a finely discriminating measure of syntactic maturity in remedial writers. This study suggests that T-unit and embedding measures used by Hunt, Mellon, and others may not be adequate for remedial students. I have no conclusive evidence to present here, but my analysis of the SMT and writing samples of the pilot project students indicates that often a student whose syntactic maturity level appears to be relatively high (because of length and multiple embeddings) has actually written what Shaughnessy describes as a "derailed" sentence or group of sentences -- those that boggle the mind with odd modifications and long strings of seemingly unrelated words. We need much more study, then, of the syntactic patterns that characterize the writing of remedial students and of the ways in which those patterns change as the student improves.

Finally, we need to discover better ways of describing the processes of remedial writers. Instructors in the pilot study observed, for instance, that the students tended to begin writing at once when given an assignment, rather than taking time to plan. Even after extensive work on the processes of invention, students were very easily distracted from a line of thought when they were planning. Organization often proceeded by apparent free-association rather than by logical or organic progression. And, particularly on the pretests, students did almost no editing at all. These, however, are simply general observations. Future researchers must carry out detailed case studies before we will know whether any of these observations may safely be generalized from.

Perhaps never have the demands and challenges and problems facing writing teachers and researchers seemed so impenetrable, but never have the solutions seemed so tantalizingly close. We now have the means -- through study of such related fields as learning theory, cognitive psychology, linguistics, statistics, and others to create programs that will help us gather necessary data at the same time that they help students improve their writing -- in concrete and measurable ways. And one of the major bonuses of such programs and the researchers who work in them may be to establish, at last, what Janet Emig (1977) argues persuasively is the unique value of writing to learning itself.

APPENDIX A: SYNTACTIC MATURITY TEST

Directions: Read the passage all the way through. You will notice that the sentences are short and choppy. Study the passage, and then rewrite it in a better way. You may combine sentences, change the order of words, and omit words that are repeated too many times. But try not to leave out any of the information.

Aluminum is a metal. It is abundant. It has many uses. It comes from bauxite. Bauxite is an ore. Bauxite looks like clay. Bauxite contains aluminum. It contains several other substances. Workmen extract these other substances from the bauxite. They grind the bauxite. They put it in tanks. Pressure is in the tanks. The other substances form a mass. They remove the mass. They use filters. A liquid remains. They put it through several other processes. It finally yields a chemical. The chemical is powdery. It is white. The chemical is alumina. It is a mixture. It contains aluminum. It contains oxygen. Workmen separate the aluminum from the oxygen. They use electricity. They finally produce a metal. The metal is light. It has a luster. The luster is bright. The luster is silvery. This metal comes in many forms.

APPENDIX B:

RESULTS OF ERROR RECOGNITION/EDITING TEST

Error	Type	Wrong Pre	Wrong Post	Right Pre	Right Post
1. Quiet/quite	spelling	50 64%	24 31%	28 36%	54 69%
2. to/too	homonym	72 93%	51 65%	6 7%	27 35%
3. :/ ; or .	punctuation	36 46%	27 35%	42 54%	51 65%
4. tuesday/ Tuesday	capitalization	39 50%	19 24%	39 50%	59 76%
5. tasks/task	agreement: complement	35 45%	24 31%	43 55%	54 69%
6. writting/ writing	spelling	40 51%	20 26%	38 49%	58 74%
7. come/comes	agreement: subject-verb	51 65%	25 32%	27 35%	53 68%
8. ones/one's	possession	73 94%	65 83%	5 6%	13 17%
9. real/really	adjective/ adverb	61 78%	51 65%	17 22%	27 35%
10. most hard/ hardest	comparatives	40 51%	24 31%	38 49%	54 69%
11. its/it's	contraction/ homonym	50 64%	27 35%	28 36%	51 65%
12. a/an	article	51 65%	35 45%	27 35%	43 55%
13. Comp/comp	capitalization	55 71%	48 62%	23 29%	30 38%
14. alot/a lot	spelling	62 79%	27 35%	16 21%	51 65%

Error		Type	Wrong Pre	Wrong Post	Right Pre	Right Post
15.	there/their	homonym	60 77%	32 41%	18 23%	46 59%
16.	head/heads	agreement: p-a	77 99%	64 82%	1 1%	14 18%
17.	writes/write	agreement: subject-verb	4 5%	1 1%	74 95%	77 99%
18.	you're/your	homonym	44 56%	25 32%	34 44%	53 68%
19.	freinds/ friends	spelling	62 79%	51 65%	16 21%	27 35%
20.	tell/tells	agreement: subject-verb	23 30%	13 17%	55 70%	65 83%
21.	friends'/ friend's	possessive	54 70%	49 63%	24 30%	29 37%
22.	whom/who	case	21 27%	13 17%	57 73%	65 83%
23.	tell/tells	agreement: subject-verb	17 22%	9 12%	61 78%	69 88%
24.	whats/what's	contraction	53 68%	32 41%	25 32%	46 59%
25.	has stemmed/ stems	tense shift	77 99%	75 96%	1 1%	3 4%
26.	wether/whether	spelling	57 73%	36 46%	21 27%	42 54%
27.	you're/your	homonym	45 58%	23 30%	33 42%	55 70%
28.	he/him	case	48 61%	29 37%	30 39%	49 63%
29.	be trying/try	verb form	45 58%	27 35%	33 42%	51 65%
30.	yourselve/ yourself	spelling	34 44%	17 22%	44 56%	61 78%
TOTALS			1436	963	904	1377

Average missed on pre-test:	18	60%
Average missed on post-test:	12	40%
Average correct on pre-test:	12	
Average correct on post-test:	18	

APPENDIX C:

PRE-, POST-, AND CONTROL-GROUP MEANS
FOR ANALYTIC VARIABLES

Variable	Description	Pilot Pre-test Mean	Pilot Post-test Mean	Control Post Mean
6	# of words	136.90	148.63	149.54
7	# correct contractions	1.51	1.39	1.46
8	# sentences	8.19	7.60	8.50
9	# T-units	9.90	9.50	10.38
10	# words in T-units	136.25	148.23	148.93
11	# sentences with I as subject	0.84	1.15	1.00
12	# subordinate clauses	2.34	3.35	2.40
13	# words in subordinate clauses	18.19	29.34	20.27
14	# relative clauses	2.99	2.46	3.26
15	# words in relative clauses	20.27	16.42	20.73
16	depth level of most deeply embedded sentence	1.40	1.59	1.30
17	topic sentence: 1=yes; 2=yes but weak	1.97	1.24	1.93
18	# of paragraphs	1.31	0.99	1.54
19	# coordinating conjunctions	1.34	1.56	1.07

Variable	Description	Pre-test Mean	Post-test Mean	Control Mean
20	# "ands" between main clauses	0.78	0.93	0.50
21	# other "ands"	2.48	2.30	2.41
22	# instances of faulty parallelism and illogical coordinations	0.92	0.55	0.77
23	# sentences with non-subject opener	2.30	2.75	2.40
24	# all fragments	0.21	0.10	0.36
25	# fragments due to punctuation	0.07	0.07	0.25
26	# fragments logically connected to preceding sentence	0.13	0.03	0.15
27	# fragments containing -ing forms	0.03	0.01	0.07
28	# faulty subject-verb agreement	0.21	0.13	0.38
29	# errors in use of principal parts of verbs	0.38	0.40	0.54
30	# errors in tense shifts	0.81	0.65	0.89
31	# passive verbs	0.40	0.59	0.90
32	# all spelling errors	3.80	2.80	4.46
33	# homonym errors	0.96	0.80	1.00

Variable	Description	Pre-test Mean	Post-test Mean	Control Mean
34	# 2-words-as-one errors	0.44	0.48	0.72
35	# end-of-word errors	1.21	0.80	1.16
36	# pronoun case errors	0.13	0.03	0.09
37	# noun-pronoun agreement errors	0.94	0.70	1.16
38	# unclear pronoun antecedents	0.28	0.19	0.19
39	# illogical subordinations	0.42	0.40	0.44
40	# capitalization errors	0.67	0.50	0.86
41	# omitted words	0.26	0.03	0.40
42	# illegible words	0.05	0.03	0.18
43	# double negatives	0.09	0.02	0.01
44	# awkward word order, dangling modifiers	1.16	0.81	1.27
45	# garbled sentences	0.13	0.01	0.17
46	# non-idiomatic phrases	0.47	0.31	0.49
47	# wrong word used	0.84	0.60	0.79
48	# semi-colons	0.06	0.25	0.04
49	# colons, dashes, parentheses, and/or quotation marks	0.28	0.29	0.33
50	# fused sentences	0.37	0.18	0.35

Variable	Description	Pre-test Mean	Post-test Mean	Control Mean
51	# run-on sentences	0.18	0.20	0.25
52	# comma splices	0.45	0.20	0.58
53	# remaining misplaced commas	0.51	0.88	0.92
54	# misplaced semi-colons	0.03	0.09	0.09
55	# misplaced (or omitted) question marks/exclamation marks	0.00	0.03	0.03
56	# misplaced dashes, hyphens, parentheses, quotation marks	0.31	0.14	0.04
57	# omitted commas	1.55	1.39	1.41
58	# omitted dashes, parentheses, or quotation marks	0.10	0.15	0.06
59	# sentence fragments containing no finite verb	0.01	0.01	0.06
60	analytic rater's overall score (1=lowest; 6=highest)	2.09	3.48	2.28
61	ACT English score	8.21	8.21	8.60
62	Holistic score (1=lowest; 6=highest)	2.40	3.57	2.42
69	# total run-ons	1.00	0.58	1.18

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